

What is claimed is:

1. A fuel composition, comprising:

5 (a) a medium substantially free of to free of sulphur;
 (b) a detergent/dispersant additive; and
 (c) a liquid fuel

wherein the medium substantially free of to free of sulphur is an aliphatic hydrocarbon solvent, and the aliphatic hydrocarbon solvent is present from at least about
10 50 wt % to about 100 wt % of the total amount of the medium.

2. The composition of claim 1 wherein the medium substantially free of to free of sulphur has a sulphur content below about 25 ppm by weight.

15 3. The composition of claim 2 wherein the sulphur content is below about 18 ppm by weight.

20 4. The composition of claim 1 wherein the aliphatic hydrocarbon solvent is present from at least about 80 wt % to about 100 wt % of the total amount of the medium.

25 5. The composition of claim 1 wherein the aliphatic hydrocarbon solvent is present from at least about 90 wt % to about 100 wt % of the total amount of the medium.

6. The composition of claim 1 wherein the aliphatic hydrocarbon solvent has a flashpoint of about 90°C or higher.

30 7. The composition of claim 1 wherein the aliphatic hydrocarbon solvent has a flashpoint of about 105°C or higher.

8. The composition of claim 1 wherein the aliphatic hydrocarbon solvent is PilotTM 140, PilotTM 299, PilotTM 900, Petro-CanadaTM 100N or mixtures thereof.

9. The composition of claim 1 wherein the detergent/dispersant additive is the
5 reaction product of a hydrocarbyl substituted acylating agent and an amine.

10. The composition of claim 9 wherein the hydrocarbyl substituent is derived from a polyisobutylene having a number average molecular weight of about 300 to about 5,000.

11. A process for increasing the efficiency of an exhaust after-treatment device of an internal combustion engine, comprising:

operating the engine with a fuel composition comprising

(a) a detergent/dispersant additive in a medium substantially free of to free
15 of sulphur; and

(b) a liquid fuel

wherein the contribution of component (a) to the total sulphur content of the fuel composition is less than about 20 ppm by weight, and the exhaust after-treatment device is suitable for reducing emissions of at least one member of the group

20 consisting of particulate matter, NO_x gases, and mixtures thereof to less than about 600 ppm by weight.

12. The process of claim 11 wherein the medium substantially free of to free of sulphur is selected from the group consisting of an aromatic hydrocarbon solvent,
25 an aliphatic hydrocarbon solvent and mixtures thereof.

13. The process of claim 12 wherein the aromatic solvent is ShellsolvTM AB, toluene, xylene, AromaticTM 200, AromaticTM 150, AromaticTM 100, SolvessoTM 200, SolvessoTM 150, SolvessoTM 100, HANTM 857, or mixtures thereof.

14. The process of claim 11 wherein the contribution of component (a) to the total sulphur content of the fuel composition is less than about 15 ppm by weight.

15. The process of claim 11 wherein the contribution of component (a) to the total sulphur content of the fuel composition is less than about 6 ppm by weight.

16. The process of claim 11 wherein the exhaust after-treatment device is a three-way catalyst, a diesel oxidation catalyst, a catalysed diesel particulate filter, a catalyst that reduces NO_x, or a combination thereof.

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17. The process of claim 11 wherein the emissions of at least one member of the group consisting of particulate matter, NO_x gases and mixtures thereof is less than about 400 ppm by weight.

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18. The process of claim 11 wherein the emissions of at least one member of the group consisting of particulate matter, NO_x gases and mixtures thereof is less than about 100 ppm by weight.

19. A process for preparing a fuel composition, comprising:

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(1) mixing

(a) a medium substantially free of to free of sulphur; and

(b) a hydrocarbyl substituted acylating agent to form a mixture;

(2) reacting component (b) of the mixture with an amine to form a detergent/dispersant additive; and

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(3) adding a liquid fuel to the mixture during step (1), to the reactants during step (2), to detergent/dispersant additive after step (2), or a combination thereof wherein the medium substantially free of to free of sulphur is an aliphatic hydrocarbon solvent, and the aliphatic hydrocarbon solvent is present from at least about 50 wt % to about 100 wt % of the total amount of the medium.